IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

UNITED STATES OF AMERICA,	)	
Plaintiff,	)	Civil Action No. 99-005 (SLR)
vs.	)	
DENTSPLY INTERNATIONAL, INC.,	)	
Defendant.	)	

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U.S. DISTRICT COURT
DISTRICT OF DELAWARE

EXPERT REPORT OF JERRY WIND, PRESIDENT, WIND ASSOCIATES

Dated: June 14, 2000

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DENTAL LAB TECHNICIANS' PREFERENCES AND TRADEOFFS AMONG COMPETITIVE MANUFACTURERS OF ARTIFICIAL TEETH

FEBRUARY 29, 1999

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<u>Appendices</u>

I. QUALIFICATIONS, BACKGROUND AND OBJECTIVES

My qualifications, including a list of my publications and past testimony at trial and by deposition, are contained in my curriculum vitae, which is attached as Appendix H to this report. I am compensated at the rate of $750 per hour for my work in this case.

As I understand the issues in this case, Dentsply International is the leading producer of artificial teeth in the U.S. market. Estimates of its current share ranges from 65 to 80 percent of the U.S. market. Currently, Dentsply distributes its teeth through dealers, and if a dealer adds a competitive line of prefabricated artificial teeth, Dentsply severs its relationship with that dealer.

Other producers of artificial teeth, such as Vita and Ivoclar, have had a difficult time in penetrating the U.S. market. What is not known about this market is the role that the following marketing variables play in influencing dental laboratory technicians' choices of artificial teeth brands:

- Type of distribution – dealers versus direct distribution by manufacturer
- Price

The objective of this study that I have been asked by the United States to conduct, is to produce an appropriate representative sample and generate data that will provide a basis for establishing empirically the relative importance of these factors and a basis for estimating the expected share of Dentsply and its competitors under various scenarios of the above two marketing variables.

In addition to the data generated by the survey I conducted, which is incorporated into this report, I considered other documents including various documents generally describing the artificial tooth market, marketing and promotional materials for several brands of prefabricated artificial teeth, and the Complaint filed by the United States in this case.

II. RESEARCH APPROACH

A. Research Design

I designed and directed a study among dental laboratory technicians as a tradeoff conjoint study focusing on key variables associated with the product, distribution and price offerings of seven suppliers: Dentsply, Vita, Ivoclar, Myerson, Universal, Kenson and Justi.

The study is designed as a conjoint analysis study that generates the data providing a basis for various types of modeling including the PRIDEM and PRIDEL Models. The paper documenting these models is included in Appendix A attached to this report.

The study was designed as a TMT (Telephone recruitment, Mail follow-up and main Telephone interview) study.

B. Universe and Sample

Universe

The universe was defined as dental lab technicians responsible for the selection of plastic artificial teeth purchased by the lab for use in making dentures.

Sample

A representative national probability sample was selected from the universe of dental lab technicians responsible for the selection of plastic artificial teeth purchased by the lab for use in making dentures. The sample size included 274 respondents, one per laboratory.

The sampling procedure involved 3 phases:

(1) A national sample list of 10,000 dental laboratories was obtained from Survey Sampling, Inc. located in Fairfield, CT. Their business and professional lists are compiled from continuously updated yellow page listings, nationwide. The list of 10,000 laboratories was divided into 10 replicates of 1,000.

(2) Guideline Research, a New York-based national marketing research firm with whom I have worked on similar studies, received the 10 replicates and opened one replication at a time, with the instruction to start at the beginning of the first replicate and work through all the names in that replicate before beginning the second replicate. A total of 2,520 respondents were called to generate the final sample of respondents. A minimum of 3 dialing attempts was made for each number before eliminating that number from the sample.

II. RESEARCH APPROACH (con't)

(3) The respondents were screened to meet the following requirements:

Laboratory must fabricate dentures using plastic artificial teeth

Respondent must be responsible for selecting the plastic artificial teeth that the laboratory uses

Respondent had to be willing to participate (accept receipt of the packet)

The detailed screening results are included in Appendix G.

C. The Questionnaire

The main part of the questionnaire was Part B which consisted of a tradeoff exercise in which each respondent received 8 stimuli cards containing experimentally designed scenarios describing Dentsply and each of its competitors. Each competitor was named – Dentsply, Vita, Ivoclar, etc. The starting, or reference scenario – Exhibit 1 on the following page – showed base price and distribution for each supplier.[1] Subsequent experimentally designed scenarios varied price and distribution mode for the various brands to measure the respondent tradeoffs. For each scenario, the respondent was asked to allocate 100 points across the suppliers, reflecting his/her total plastic tooth purchases from each supplier over the next three months given the distribution and price conditions shown.

In addition, in Part A of the questionnaire, a selected set of respondent background characteristics (lab size, shares of current tooth suppliers, years in business, etc.) and preferences were collected.

Part A of the questionnaire and the instructions for responding to Part B are included in Appendix E.

[1] The reference scenario card showed Vita VITAPAN as being available from a local dealer, because for some labs this is technically accurate; however, as I understand the facts, this is not the existing market condition for the majority of labs in the United States, and was not at the time the data was collected. This was, accordingly, adjusted for during the analysis (as discussed in section F, page 12).

C141

Exhibit 1: Sample Scenario Card

5-7

(1) Plastic Teeth BRAND/LINE	(2) Anterior Card (1 x 6) PRICE IN $	(3) Available From			(4) Your Response: SHARE OF PURCHASES (PERCENT)	
		LOCAL DEALER	MAIL-ORDER DEALER	MANUFACTURER DIRECTLY		
Dentsply BIOFORM IPN	24.18	Yes	Yes	No		8-10
Dentsply BIOBLEND IPN	26.34	Yes	Yes	No		11-13
Dentsply CLASSIC	3.90	Yes	Yes	No		14-16
Dentsply PORTRAIT IPN	26.28	Yes	Yes	No		17-19
Dentsply TRUBLEND SLM	27.78	Yes	Yes	No		20-22
Ivoclar SR VIVODENT PE	25.05	No	No	Yes		23-25
Justi BLEND	12.84	Yes	Yes	Yes		26-28
Kenson RESIN	3.75	Yes	Yes	Yes		29-31
Myerson DURABLEND SPECIAL RESIN	19.95	Yes	Yes	Yes		32-34
Universal VERILUX	24.40	Yes	Yes	Yes		35-37
Vita VITAPAN	29.01	Yes	No	Yes		38-40
				Total =	100 points	

[This is the reference (C141) card sent to all respondents]

D. The Stimuli

Each respondent received 8 Scenario cards. The top card in each set is the reference card, C-141; the remaining cards represent a block of 7 (shuffled) cards drawn from a block of the master design (Appendix B). Exhibit 1, shows C-141, the reference card. The 140 experimental cards (numbered from C-1 through C-140) appear in 20 blocks of 7 cards each; their designs appear in Appendix B – the master experimental design. Appendix C contains seven illustrative stimuli cards.

Pricing

The first 8 columns of the master experimental design contain the pricing information for the 8 primary brands; the 4 Dentsply brands - BIOFORM IPN, BIOBLEND IPN, PORTRAIT IPN, TRUBLEND SLM, and Ivoclar SR VIODENT PE, Myerson DURABLEND SPECIAL RESIN, Universal VERILUX and Vita VITAPAN, respectively. The prices for Dentsply CLASSIC, Justi BLEND and Kenson RESIN are fixed throughout the design at the prices shown in the reference scenario, Card C-141, in Exhibit 1. The experimental prices for the 8 primary brands are shown in Exhibit 2. As noted, there are four price levels for each primary brand. As noted above, the 3 secondary brands have fixed prices – the same as those shown in Exhibit 1.

Distributor Availability

Exhibit 3 shows the master coding for availability. There are 7 levels for this variable. Columns 9 through 13 of Appendix B show the availability codes for the active products. Column 9 is applicable for all of the five Dentsply brands' availability. Columns 10 through 13 of Appendix B show the availability coding for SR VIVODENT PE, DURABLEND SPECIAL RESIN, VERILUX and VITA, respectively. Justi BLEND and Kenson RESIN both received an availability coding of: Yes -- Yes -- Yes throughout all of the experimental cards.

Exhibit 2: Brands and prices

Dentsply Bioform IPN	(1) $19.44	(2) $21.76	(3) $24.18	(4) $26.60
Dentsply Bioblend IPN	(1) $21.07	(2) $23.71	(3) $26.34	(4) $28.97
Dentsply Portrait IPN	(1) $21.02	(2) $23.65	(3) $26.28	(4) $28.91
Dentsply Trublend SLM	(1) $22.22	(2) $25.00	(3) $27.78	(4) $30.56
Ivoclar SR Vivodent PE	(1) $20.04	(2) $22.55	(3) $25.05	(4) $27.56
Myerson Durablend Special Resin	(1) $15.96	(2) $17.96	(3) $19.95	(4) $21.95
Universal Verilux	(1) $19.52	(2) $21.96	(3) $24.40	(4) $26.84
Vita Vitapan	(1) $23.21	(2) $26.11	(3) $29.01	(4) $31.91

Denstply Classic	$ 3.90	Fixed
Justi Blend	$12.84	Fixed
Kenson Resin	$ 3.75	Fixed

Exhibit 3: The Availability Attributes

Design Level	Local Dealer	Mail-Order Dealer	Manufacturer Directly
1	Yes	Yes	Yes
2	Yes	Yes	No
3	Yes	No	Yes
4	Yes	No	No
5	No	Yes	Yes
6	No	Yes	No
7	No	No	Yes

E. Data Collection

The data collection was conducted at my direction by Guideline Research.

The data collection consisted of a TMT design in which respondents were screened by telephone (screener questionnaire is included in Appendix D). Following that, they were sent by priority mail 2 envelopes consisting of a questionnaire (Appendix E) and 8 stimulus cards (one of the 20 blocks of the master design outlined in Appendix B and illustrated in Appendix C). Four to five days later they received a second telephone call and instructions on how to complete the forms. They were asked to return the completed forms and the stimuli to Guideline Research.

The field instructions were prepared by Guideline Research and are included in Appendix F. Neither the interviewers nor the respondents were informed of the purpose or sponsor of the study.

The data generated by the responses to Parts A and B of the questionnaire is incorporated into this report and contained, respectively, in the computer files titled "dental.as1" and "dental.as2."

F. Data Analysis

One method that can be used to analyze the data produced by this survey is the PRIDEM/PRIDEL model developed by Paul Green and Abba Krieger (and described in Appendix A). This model enables the user to "parse out" the effect of each experimentally manipulated variable on respondents' tradeoffs across suppliers. Respondent background attributes from Part A of the questionnaire are included in the model in order to examine their segmentation effects.

The initial analysis focused on 3 scenarios:

(1) Base scenario: Current market conditions at the time the survey was designed and conducted, as reflected in the base stimulus card (C-141) with one exception: that Vita is not available from a local dealer (for the reasons noted in the section above describing the questionnaire).

(2) Scenario 2: Vita and Ivoclar are available from a local dealer and from the manufacturer directly but not from a mail order dealer, and the price variable will remain the same as the base scenario for Vita and Ivoclar (all price and distribution variables remain the same as the base scenario for each of the other brand/lines);

(3) Scenario 3: Vita and Ivoclar are available from all three distribution options: local dealer, mail order dealer, and from the manufacturer directly, and the price variable will remain the same as the base scenario for Vita and Ivoclar (all price and distribution variables remain the same as the base scenario for each of the other brand/lines).

III. RESULTS

The initial results produced by the PRIDEM/PRIDEL model for three key scenarios are included in Exhibit 4 on the following page.

This model allows for the calculation of expected share for any scenario based on the factors and levels included in the study (and listed in Exhibits 2 and 3).

Exhibit 4

Estimated Market Share Results for Ivoclar and Vita Under Three Scenarios

The Scenarios

	The Scenarios	Ivoclar Share	Ivoclar Relative Gain vs. Scenario 1	Vita Share	Vita Relative Gain vs. Scenario 1
1	Base Scenario Current market conditions as reflected in the base stimulus card (C-141) with one exception, that Vita is not available from a local dealer	5.05%	-----	3.37%	-----
2	Scenario 2 Vita and Ivoclar are assumed to be available from a local dealer and from the manufacturer directly but not from a mail order dealer; the price variable remains the same as the base scenario for Vita and Ivoclar (all price and distribution variables remain the same as the base scenario for each of the other brand/lines)	6.84%	35%	3.69%	9%
3	Scenario 3 Vita and Ivoclar are available from all three distribution options: local dealer, mail order dealer, and from the manufacturer directly; the price variable remains the same as the base scenario for Vita and Ivoclar (all price and distribution variables remain the same as the base scenario for each of the other brand/lines)	6.25%	24%	4.44%	32%

IV. CONCLUSIONS

This study, using conjoint analysis methodology, which is generally accepted and commonly used for assessing respondent's trade-offs among key marketing variables, was designed to generate data that allows analysis to:

(a) Establish empirically the relative importance of types of distribution and price in dental laboratory technicians' choices of artificial teeth brands

(b) Estimate the expected share of Dentsply and its competitors under various scenarios of the above two marketing variables

The survey was conducted at my direction according to generally accepted professional scientific standards for survey research used in litigation in order to assure the objectivity of the entire process.

The findings of the study using the PRIDEM/PRIDEL model as summarized in Exhibit 4 show that:

- In the base case reflecting generally prevailing market conditions at the time the survey was designed and conducted, in which Ivoclar and Vita are unavailable from local or mail order dealers, the expected share of
  - Ivoclar is 5.05%
  - Vita is 3.37%

- In a scenario in which Ivoclar and Vita are available from only local dealer and manufacturer, the share of
  - Ivoclar is 6.84%, an increase of 35%
  - Vita is 3.69%, an increase of 9%

IV. CONCLUSIONS (con't)

- In a scenario in which Ivoclar and Vita are available from all three distribution modes – manufacturer, mail order or local dealer, the share of
  - Ivoclar is 6.25%, an increase of 24% vs. the base case
  - Vita is 4.44%, an increase of 32% vs. the base case

Yoram Jerry Wind, Ph.D.